**Statistical Analysis Report on Climate Change Mitigation Policy Responses**

1. **Pearson’s Chi-Square Test of Independence** To examine whether there is a significant association between respondents' gender and their law compliance behavior, a Pearson’s Chi-Square Test with Yates' continuity correction was conducted. The test statistic (X²) was 0.2714 with 1 degree of freedom and a p-value of 0.6024.
   * **Decision Rule:** Reject the null hypothesis if p-value < 0.05.
   * **Decision:** Do not reject the null hypothesis.
   * **Interpretation:** There is no statistically significant association between gender and law compliance behavior. This suggests that gender does not influence how individuals comply with laws related to climate change mitigation.
2. **Wilcoxon Rank-Sum Test (Mann-Whitney U Test)** To determine whether there is a significant difference in initiatives participation level between males and females, the Wilcoxon Rank-Sum Test (Mann-Whitney U Test) was performed with continuity correction. The test statistic (W) was 1283, and the p-value was 0.8423.
   * **Decision Rule:** Reject the null hypothesis if p-value < 0.05.
   * **Decision:** Do not reject the null hypothesis.
   * **Interpretation:** There is no statistically significant difference in participation levels between males and females. This indicates that gender does not have an impact on participation in climate change mitigation initiatives.
3. **Welch Two-Sample t-Test** In evaluating whether there is a significant difference in policy effectiveness ratings between male and female respondents, Welch’s two-sample t-test was applied. The t-statistic was 0.4174 with 90.76 degrees of freedom and a p-value of 0.6774. The 95% confidence interval for the mean difference ranged from -0.3426 to 0.5249. The mean policy effectiveness rating was 3.109 for females and 3.018 for males.
   * **Decision Rule:** Reject the null hypothesis if p-value < 0.05.
   * **Decision:** Do not reject the null hypothesis.
   * **Interpretation:** There is no statistically significant difference in perceived policy effectiveness between genders. This suggests that male and female respondents perceive the effectiveness of climate change policies similarly.
4. **Duncan’s Multiple Range Test (Post-hoc Comparison by Education)** To investigate differences in policy effectiveness based on education level, a one-way ANOVA followed by Duncan’s Multiple Range Test was performed. The ANOVA produced a Mean Square Error of 0.9895 with 98 degrees of freedom, and the coefficient of variation was 32.53%. Duncan’s test was used at a 0.05 significance level across five education groups.
   * **Decision Rule:** Groups with different group letters are significantly different.
   * **Decision:** Respondents with "Other" education levels rated policy effectiveness significantly higher than those with no formal education or primary education. Tertiary and secondary education levels were grouped together, while the lowest scores were observed among those with no formal education.
   * **Interpretation:** Education level plays a statistically significant role in shaping perceptions of climate change policy effectiveness. Those with higher education levels tend to rate policies more positively.
5. **Wilcoxon Signed-Rank Test** A Wilcoxon Signed-Rank Test with continuity correction was used to compare respondents’ awareness of government climate change mitigation programs and their compliance with related laws. The test statistic (V) was 273, and the p-value was 0.0195.
   * **Decision Rule:** Reject the null hypothesis if p-value < 0.05.
   * **Decision:** Reject the null hypothesis.
   * **Interpretation:** There is a statistically significant difference between awareness and compliance behavior. This suggests that while respondents may be aware of climate programs, their actual compliance with laws is not necessarily aligned with this awareness, indicating a potential gap between knowledge and action.
6. **Kruskal-Wallis Test** To determine whether there are statistically significant differences in the level of participation in climate change mitigation initiatives among different age groups, a Kruskal-Wallis test was conducted. The test statistic (χ²) was 4.94, and the p-value was 0.293.
   * **Decision Rule:** Reject the null hypothesis if p-value < 0.05.
   * **Decision:** Do not reject the null hypothesis.
   * **Interpretation:** There is no statistically significant difference in participation levels across different age groups. This suggests that age does not significantly influence the level of engagement in climate change mitigation initiatives within the context of this study’s sample population.

**Summary of Statistical Test Results**

| **Test** | | **Statistic** | **p-value** | **Decision** | | |
| --- | --- | --- | --- | --- | --- | --- |
| Chi-Square Test (Gender vs. Compliance) | | 0.2714 | 0.6024 | Do Not Reject Null | | |
| Mann-Whitney U Test (Initiatives by Gender) | | 1283 | 0.8423 | Do Not Reject Null | | |
| Welch t-Test (Policy Effectiveness by Gender) | | 0.4174 | 0.6774 | Do Not Reject Null | | |
| Wilcoxon Signed-Rank Test (Awareness vs. Compliance) | | 273 | 0.0195 | **Reject Null** | | |
| Kruskal-Wallis Test | 4.943 | 0.293 | | Do Not Reject Null |

**Duncan Multiple Range Test Results (Policy Effectiveness by Education Level)**

| **Education Level** | **Mean Policy Effectiveness** | **Group Letter** |
| --- | --- | --- |
| Other | 3.67 | a |
| Tertiary | 3.41 | ab |
| Secondary | 3.25 | ab |
| Primary | 2.47 | bc |
| No formal education | 2.27 | c |